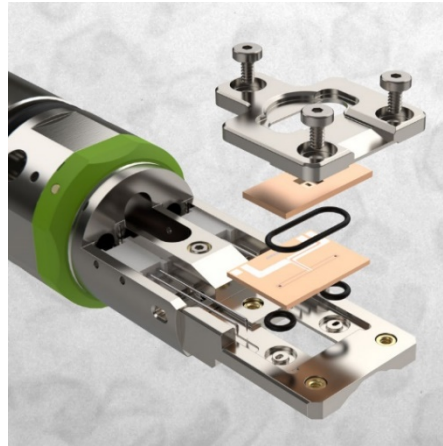


Liquid Phase Electron Microscopy: A powerful route for Material Science, Energy Storage and Life Science applications

September 18th, 2020

11.00 - 12.30

Faculty of Civil and Industrial Engineering - Sapienza University of Rome



ABSTRACT

Having the capability to enable electron microscopy imaging in liquid environments has been attracting much interest from the scientific community. The possibility to visualize, in real time, the dynamic mechanisms of different samples in their native liquid nature, as a function of stimuli such as heating or biasing, opens up a wide variety of opportunities in fields like energy storage, electrocatalysis, corrosion, materials synthesis, pharmaceutical and structural biology. In particular, liquid phase electron microscopy (LPEM) can provide a comprehensive framework on the functional understanding and the structural characterization of various embodiments in liquid phase. Here, an introduction will be given to our recent solutions to empower LPEM research. The technical developments made so far, which are based on Micro-Electromechanical Systems (MEMS) technology, bring a huge significance and added value as we have focused on addressing the key challenges that the LPEM community has long tried to fight: (a) ensuring a controlled and reproducible liquid flow through the region of interest (i.e. window, sample, electrodes), (b) controlling the liquid thickness to achieve high imaging resolution and to enable meaningful electron diffraction, EELS and elemental mapping in liquid, (c) prevent clogging and cross-contamination, (d) flush away unwanted beam-induced species and (e) mitigate bubble formation. After discussing the architecture of our system and explaining the main features and benefits, a group of selected application examples will be shown.

Note: A link to the recording of this event will be provided to all registrants, even if they are unable to attend at the time of broadcast.

SPEAKER:

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